

WHAT IS CLAIMED IS:

1 1. A method of identifying a superframe boundary
2 comprising:

3 summing data vectors for each symbol in a plurality of
4 superframes;

5 determining the summed data vector having the largest
6 magnitude; and

7 indicating the superframe boundary at the symbol position
8 correlating to the largest summed data vector.

1 2. The method of Claim 1, further comprising
2 synchronizing a plurality of modems based on the superframe
3 boundary.

1 3. The method of Claim 1, further comprising
2 representing data tones for each symbol as the data vectors.

1 4. The method of Claim 3, further comprising combining
2 the data tones of each symbol across the plurality of
3 superframes.

1 5. The method of Claim 1, further comprising converting
2 the summed data to power.

1 6. The method of Claim 5, further comprising comparing
2 a current summed vector with previous summed vectors.

1 7. The method of Claim 6, further comprising setting a
2 boundary flag when the current summed vector is greater than
3 all the previous summed vectors.

1 8. The method of Claim 6, further comprising
2 identifying a synchronization symbol based on the position of
3 the boundary flag.

1 9. A method of aligning modems comprising:
2 identifying the position of a synchronization symbol in a
3 superframe; and
4 aligning the symbols of each modem based on the position
5 of the synchronization symbol.

1 10. The method of Claim 9, further comprising
2 determining a summed vector having the largest value to
3 identify the position of the synchronization symbol.

1 11. The method of Claim 10, further comprising
2 communicating between each modem using discrete multitone
3 (DMT) symbols.

1 12. The method of Claim 11, further comprising
2 converting the DMT symbols into data vectors.

1 13. The method of Claim 10, further comprising combining
2 the data vectors over a plurality of superframes to create the
3 summed vector.

1 14. A communication system comprising:

2 a plurality of modems which communicate using a plurality
3 of superframes, each of the plurality of superframes having a
4 plurality of symbols; and

5 a synchronizer which identifies the position of the
6 superframe boundary, wherein the plurality of modems align
7 based on the superframe boundary.

1 15. The communication system of Claim 14, wherein the
2 plurality of modems are ADSL modems.

1 16. The communication system of Claim 14, wherein the
2 synchronizer determines the position of a synchronization
3 symbol of the superframes.

1 17. The communication system of Claim 16, wherein the
2 synchronizer compares a summed data vector of each symbol of
3 the plurality of superframes.

1 18. The communication system of Claim 17, wherein the
2 symbol position having the summed data vector with the largest
3 value is the synchronization symbol position.

1 19. The communication system of Claim 14, wherein the
2 plurality of modems communicate using discrete multitone
3 symbols.

1 20. The communication system of Claim 14, wherein one of
2 the plurality of modems communicates with a central office.